USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

Plant Guide

SAND LOVEGRASS

Eragrostis trichodes (Nutt.) Alph. Wood

Plant Symbol = ERTR3

Contributed by: USDA NRCS Plant Materials Center Manhattan, Kansas

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Alternate Names

Sand love grass, tall love grass, sandhill lovegrass

Uses

Sand lovegrass is a native, warm-season, perennial bunch grass that is palatable and preferred by grazing livestock in the central and southern Great Plains. It begins growth as much as two weeks earlier than other warm-season grasses. Sand lovegrass remains green into the fall and retains fair forage value even after maturity (Stubbendieck et al. 1982). It is known to cure well on the stem and provide winter forage for livestock and wildlife. It is included in range reseeding mixtures to provide quick cover and early forage production (Leithead et al. 1971). It is occasionally cut for hay.

Status

Please consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status (e.g. threatened or endangered species, state noxious status, and wetland indicator values).

Description

General: Grass family (Poaceae). Sand lovegrass is a native, warm-season, short-lived, perennial, bunch grass found on sandy soil sites in the central and southern plains states. The erect culms are 80 to 120 cm tall, solid or hollow below. The leaf blades are flat to involute or rolled in at the margins, with a prominent midrib. The leaf blade is 20 to 46 cm long and 1.5 to 6 mm wide and taper to a slender point. The narrow leaf blade will roll inward under dry conditions to conserve moisture; this gives the leaf blade a threadlike appearance. The panicle type inflorescence is open or diffuse, oblong and usually half as long as the entire culm (Pohl 1978). The panicle is branched 3 or 4 times and the branches are curved alternately in opposite directions. The spikelets are 3.8 to 10 mm long, 1.5 to 6 mm wide and contain from 4 to 6 flowers (Barkley et al. 1986). The individual florets are frequently purplish with yellow glumes (Pohl 1978). The caryopsis is dark brown, strongly grooved on the side opposite the embryo and .8 to 1.1 mm long. Chromosome number is 2n=40. Sand lovegrass possesses the C-4 photosynthetic pathway for carbon fixation (Waller and Lewis 1979).

Distribution: For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site. Natural distribution of sand lovegrass is from the sandhills in northwestern Nebraska, east to Illinois and then south to central Texas.

Habitat: Grows principally on deep sands and sandy loam soils on sandy prairies and open sandy woods.

Adaptation

This tall, leafy grass has been reported to grow in ten central Great Plains states from Colorado to Illinois and south to Texas. It grows best on sandy soils in the 45 to 90 cm rainfall areas. It is sometimes found growing on heavier type soils. It is best adapted to growth on north and east facing slopes (Moser and Perry 1983). Sand lovegrass has a shallow, widely spreading root system (Weaver 1968). It will show decrease in stand numbers under intense grazing pressure. Sand lovegrass occurs in mixed native stands with hairy grama (*Bouteloua hirsuta*), western wheatgrass (*Pascopyrum smithii*), Scribners panicum (*Dicanthelium oligosanthes*), sand dropseed (*Sporobolus cryptandrus*) and needle and thread (*Hesperostipa comata*).

Establishment
Propagation of *Eragrostis trichodes* is accomplished by seed and by the previous year's growth increasing in size by tillering and sometimes rooting at the nodes of basal stems (Adams 1956). Perez et al. (1998) conducted a seedbank study in the Nebraska sandhills to determine in part the diversity and size, seed dormancy and germination, and seedling emergence in this fragile ecosystem. Seed quantity was greater in the shallower seedbank (0 to 5 cm) than in the deeper seedbank (15 to 20 cm). Sand dropseed (*Sporobolus cryptandrus*) and sand lovegrass were the most common perennial grass species identified in both seedbank levels across years. However, the basal coverage for these species in the above ground vegetation was relatively low. With respect to total germination sand dropseed and sand lovegrass were the most prominent grass seedlings identified. Some atrazine tolerance is present in some warm-season grasses, but not in sand lovegrass (Martin et al. 1982). Seedbed preparation should provide a weed free, firm surface on which to plant. Since seed size is small the planting depth should be 2.5 to 5 mm to allow seedling emergence. Neoteric seed of *E. trichodes* often shows considerable dormancy. This quality may be considered desirable for range seedings since seedlings continue to emerge over a longer period of time (Ahring et al. 1963).

Management
Sand lovegrass provides highly palatable forage for livestock and is sometimes referred to as "ice cream grass" because of its palatability. Total nonstructural carbohydrate (TNC) accumulation or carbohydrate reserves of a plant have been shown to play an important role in grass management and survival. Carbohydrate reserves of perennial grasses are important for winter survival, spring regrowth, and regrowth after herbage removal by clipping or grazing. According to Perry and Moser (1974) sand lovegrass has its greatest percentage of carbohydrate reserves located in their stem bases. Thus, sand lovegrass should not be closely grazed at any time during the growing season (Moser and Perry 1983). They further stated that defoliation once early in the growing season (June) appeared to be less detrimental to plant survival than late summer defoliations. In rangelands where good stands exist, sand lovegrass would yield and persist best in a rotational grazing system where defoliation was limited to once a year and it should have some leaf tissue remaining at the end of the grazing period. Sand lovegrass is a short lived plant even with light defoliation. Seed production should be permitted to allow for the possibility of new seedling development.

Pests and Potential Problems
Grasshoppers, leafhoppers and other forage eating insects are very destructive to seedling stands. Rabbits and rodents are also damaging to seedlings. Vogel and Kindler (1980) observed subterranean root aphids *(Geoica utricularia*) at the Mead Field Laboratory when digging and moving sand lovegrass selections to a crossing block from a selection nursery. Subsequent investigations indicated that the white, pear shaped aphids were infesting the roots of all sand lovegrass plots. Later experiments using two insecticides and a control (non-treated plots) indicated that the aphids were significantly reducing forage yields in the untreated plots of sand lovegrass.

Environmental Concerns
Sand lovegrass does not pose any known negative concerns to the environment. Its ability to grow and survive on sandy sites provides increased ground cover which reduces both wind and water erosion on these sites.

Seeds and Plant Production
Seed can be harvested with a standard combine and cleaned with a fanning mill. Seed of sand lovegrass is extremely small with 3,810,000 seeds per kg or 1.5 million seeds per pound. A five year average seed yield for 'Bend' sand lovegrass at the Manhattan Plant Materials Center (PMC) was 197 kg per ha. This average yield was reported with supplemental irrigation and additional fertility as a management option. Ahring et al. (1963) found that sand lovegrass seed germinated better under alternating temperature regimes and when moistened with a $Ca(NO_3)_2$ solution.

Cultivars, Improved, and Selected Materials (and area of origin)
Contact your local Natural Resources Conservation Service office for more information. Look in the phone book under "United States Government". The Natural Resources Conservation Service will be listed under the subheading "Department of Agriculture."

'Nebraska 27' sand lovegrass was cooperatively released by the Nebraska Agriculture Experiment Station, USDA Agriculture Research Service, and USDA Soil Conservation Service (SCS) in 1949. The original collection was made in northern Holt County, Nebraska. Nebraska 27 is described as a winter hardy, relatively long-lived strain of sand lovegrass. Well adapted to a range of soil types and

produces palatable and highly nutritious livestock forage.

'Mason' sand lovegrass was cooperatively released by USDA Soil Conservation Service and the Texas Agriculture Experiment Station in 1971. The original collection was made by SCS personnel from native stands near Mason, Texas. Mason is described as leafier, having better seed and forage production and begins growth earlier in the spring than common sand lovegrass lines.

'Bend' sand lovegrass was cooperatively released by the Kansas Agriculture Experiment Station and USDA's Agriculture Research Service and Soil Conservation Service in 1971. The original collections were made from the Arkansas and Cimarron River basin in south central Kansas and adjacent areas in Oklahoma. Two cycles of selection for vigor and persistence were conducted on non-irrigated sandy soil. Bend is described as uniform in maturity, a good seed producer, good establishment characteristics and relatively disease free. Bend had acceptable dry matter yield and good vigor in comparative tests.

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